UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,140	03/17/2004	Mitsuji Waki	04184/LH	3268

1933 7590 10/24/2005

FRISHAUF, HOLTZ, GOODMAN & CHICK, PC
220 5TH AVE FL 16
NEW YORK, NY 10001-7708

EXAMINER	
NGUYEN, HAU H	
ART UNIT	**PAPER NUMBER**
2676	

DATE MAILED: 10/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/802,140	WAKI ET AL.	
	Examiner	Art Unit	
	Hau H. Nguyen	2676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 7/30/04.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3-5, 7, and 8 are rejected under 35 U.S.C. 112, second paragraph for lack of antecedent basis. There is insufficient antecedent basis for the limitations "the identification codes of respective display devices" and "the layout information memory means", "the means for calculating the characteristic parameter", "the image characteristic detecting means" recited in claims 3-5, 7, and 8.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Johnson et al. (U.S. Patent No. 6,219,099).

Referring to claims 1 and 15, as shown in Fig. 1, Johnson et al. teach a tiled display is provided that has two or more projectors arranged in an array configuration, wherein, each of the displays preferably manifests a discrete image separately onto a viewing surface or screen, wherein the discrete images collectively form a composite image (col. 5, lines 25-35) (a

multiple-screen display having one-screen constituted by combining plural N of image display devices). As shown in Fig. 4, Johnson et al. teach characteristic data (feature data) of the corresponding image display device are extracted and stored in the characteristic data memory means (reference image and data 100) (col. 10, lines 47-67, and col. 11, lines 1-7). Johnson et al. also teach the Executive Processor 48 (a compensation data calculator common to all display devices) calculates compensation data of respective image display devices collectively, based on the characteristic data (extracted image features) stored in all characteristic data memory means, and store these compensation data in the corresponding compensation data memory means (transform calculator block 102) (col. 11, lines 8-26), and further teach that the input video signals being displayed (Transformed Video Stream 50) by compensating and processing them in respective image display devices, by the video signal correction processing means (Realtime Warper and Color Blender 104), based on the compensation data stored in the corresponding compensation data memory means (col. 11, lines 25-38, and flowchart in Fig. 9).

In regard to claim 2, as cited above, Johnson et al. teach all the limitations of claim 2, including a characteristic data memory means, a compensation data memory means, a compensation data calculator means, and a video signal correction processing means to display video signals by compensating and processing based on compensation data. As shown in Figs. 6 and 7, Johnson et al. further teach a communication means through which all image display devices being able to be connected with mutual communicable.

As for claims 3 and 4, as cited above, Johnson et al. teach all the limitations of claims 3 and 4, including a characteristic data memory means, a compensation data memory means, a compensation data calculator means, and a video signal correction processing means to display

video signals by compensating and processing based on compensation data. Johnson et al. further teach the transformation function may be represented by a color look up table (record carrier/database) of captured or compressed color domes, a nearest neighbor detection and identification function (identification code) and an interpolation function among the nearest neighbors to determine the input level needed at the display to output the desired linear output level (col. 9, lines 3-45).

In regard to claims 5 and 6, as cited above, Johnson et al. teach all the limitations of claim 5, including a characteristic data memory means storing characteristic parameter, a compensation data memory means storing compensation data based on the characteristic parameter, a compensation data calculator means, and a video signal correction processing means to display video signals by compensating and processing based on compensation data, and that all display devices are mutually communicable. Since Johnson et al. teach the Executive Processor 48 performs generating compensating coefficients collectively, and that the layout position of the display devices is arbitrary (col. 6, line 2-9), it is implied that an arbitrary display device can be started (set to be a master) to calculate the characteristic parameter, and that a layout information storage for storing layout position of the display devices in order to carry out the compensating and processing.

As for claim 7, as cited above, since Johnson et al. teach the location of each display device identified to extract the characteristic data in spatial relationship between the neighboring display devices, it is implied that the location of each display device (identification code) is stored in the layout information.

In regard to claim 8, Johnson et al. teach the characteristic data sequentially displays a specific image to the corresponding image display device by different luminance, and the characteristic of the respective display images is displayed by the image characteristic detecting means (col. 9, lines 1-24).

In regard to claim 9, Johnson et al. teach the image characteristic detecting means contains any one of a CCD camera, a video camera, a colorimeter (col. 8, lines 1-12).

As for claim 10, Johnson et al. further teach the extracted characteristic data is obtained by sequentially input signals of Red, Green, and Blue having the input intensity of "255" (100% luminance) or the brightest input value (minimum values of R, G, B-White), and the dimmest input intensity of "0" (0% luminance) (maximum values of R, G, B-Black). Once collected, the non-desirable characteristics of each capture image can be determined including the color corresponding and input intensity variant luminance domes of each of the projectors (col.9, lines 1-24). Johnson et al. also teach the Transform Calculator Block 102 as cited above, performs the compensation using gamma correction methods (col. 11, lines 9-13) (a required gamma characteristic curve is obtained).

In regard to claims 11-14, with reference to Fig. 18, Johnson et al. teach once the luminance domes are identified, a ceiling (upper limit) and floor (lower limit) may be determined for both color and intensity, across the entire display. For example, one projector may be brighter than another even though all are driven at a maximum intensity (e.g. LCD "255"), and the brightness provided by each projector may decrease near the edges of the image. Accordingly, a ceiling may be selected to match the dimmest superposition result of all the tiles when all projectors are operated at maximum intensity. Likewise, a floor may be selected to

match the brightest superposition result when all projectors are operated at minimum intensity (LCD "0") (col., lines). Fig. 18 shows a diagram of three adjacent tiles wherein, the color intensity of each tile may be changed to make equal to the line 382 as shown (col. 17, lines 27-60).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892 form.

Firester et al. (U.S. Patent No. 6611241) disclose a modular display system using graphics commands to apply the appropriate correction functions with the sub-image data to compensate for differing brightness levels.

Inova et al. (U.S. Patent No. 5,136,390) discloses adjustable multiple image display smoothing method and apparatus

1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hau H. Nguyen whose telephone number is: 571-272-7787. The examiner can normally be reached on MON-FRI from 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on 571-272-7778.

The fax number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system contact the Electronic Business Center (EBC) at 866-2 17-9197 (toll-free).

H. Nguyen

09/29/2005

Matthew C. Bella

MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600